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Beers, W. George.

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FILLING TEETH,

BY W. GEORGE BEERS, L. D. S.
SURGEON DENTIST.

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About a year ago, Mr. H. M. Bowker published an article on the use of amalgam for filling teeth, in which he asserted:

1. "That whoever used '*Amalgam*' was unskilful, ignorant and dishonest."
2. "That the '*Royal College of Dental Surgeons of Ontario*,' and the '*Dental Association of Quebec*,' (Province), advocated and encouraged its use; and that nearly all the Dentists in Canada advocated its use."
3. "That *he did not* use it."

This method of advertising one's self is not at all rare; but the effort to depreciate the Dental Institutions of the Dominion, and the private practice of one's competitors, has, I am happy to say, had its origin in Canada in this first literary attempt of Mr. Bowkers'.

In replying to Mr. B.'s first article, quotations were given from the leading practitioners of the day in Europe and America, favoring the proper use of amalgam.

The accompanying article was written to refute personal and other assertions in his second article.

The fact that amalgam was once virulently opposed, even by leading men, is poor argument against its use now. How much of the dental practice of the present day, like much of medicine and surgery, was sneered at as visionary twenty years ago!

AMALGAM FOR FILLING TEETH.

BY W. GEO. BEERS, L.D.S., MONTREAL.

FROM THE CANADA JOURNAL OF DENTAL SCIENCE.

The revival of the venerable views on amalgam, and the specious but fallacious arguments adduced against it, which any one can read almost *verbatim* in old numbers of the *American Journal of Dental Science*, is to me like turning over the leaves of a dusty folio, which has been laid aside for half a century, and finding between two of the pages a dead, dry fly—a veritable blue-bottle. Mr. BOWKER “rings out the same old changes,” and harps on the same effete strain as did his dogmatic masters of thirty years ago. To the dental profession the question is a trite and worn-out theme. Common sense and superior intelligence have almost unanimously ignored the prejudiced tirade against amalgam *per se*; dispassionate investigation and discussion have removed the unreasonable opposition to its discriminate use, except from the minds of one solitary individual in Canada, and a “corporal’s guard” in the United States: and it must be remembered that there are always a few men in every profession, who assume a superior intelligence to the rest of their colleagues, but whose professional history, with rare exceptions, does not generally present any proofs of their great superiority, other than what they themselves assume. Thirty years ago there were probably two hundred dead opponents of amalgam, when there were not over 1,000 dentists on the continent, and they poorly educated; to-day, though there are probably 30,000 dentists—hundreds of them having had the benefit of collegiate education—yet there is only one in Canada, and a few in the States, who hold the extreme views expressed in Mr. B’s article. Mr. B., would therefore, have us infer that the dental profession has actually retrograded; that the intelligence of those who recanted their old views is not so great to-day as it was thirty years ago; that thirty years’ college and associative reform has done nothing for its intelligence! It would occupy an entire number of the *Journal* to give even a bare epitome of the bitter “Amalgam Controversy” of 1842-45, the vulgar personalities it engendered, the defamation it produced—which Mr. B. seems to have imitated in regard to our Canadian Dental Societies—and the injurious tendency of the affair on the progress of the dental profession. To re-discuss the whole subject of amalgam would, I am sure, be an unneces-

sary concession to an opponent who cannot offer one original argument, and who has to resort to arguments which have long ago been refuted, and which the enlightenment of the profession utterly ignores. However, I have no objections to lay bare a few of Mr. B's misstatements, and I beg a careful reading from even the most prejudiced.

I was prepared for the array of quotations from the minutes of defunct societies, old dental periodicals, *et cetera*, to which my opponent is at last reduced, and which he now submits as *fresh testimony* (!) against the use of amalgam. I will take it for granted that Mr. B. has never used amalgam, as it will more conveniently allow me to dispose of his arguments. His *dernier resort* is precisely what I wanted, to show that not only has he made rash statements in reference to the views still held by some of the strong anti-amalgamites of 1845, but that *his* views of amalgam have not kept pace with the dispassionate investigation and intelligence of the times, which has led almost all of the old opponents who are living to so modify their practice as to use the filling.

I freely confess to a great want of respect for old authorities in dentistry, and should be as much disposed to regulate my practice by what was gospel in 1845, as to follow the vagaries of Celsus, or pin faith to the chemical speculations of the 16th century. My opponent appeals with deference to old writers, who enunciated principles and practices when the science of dentistry was at its dawn, and much of whose assertions are mere theory, easily disproved by first year students, and who are more cherished for what they did in smoothening the way to progress than for any positive authority they now possess.

And yet we do find dentists in practice who continue to destroy all exposed pulps; to extract all teeth affected with chronic periodontitis; to treat hyper-sensitiveness of dentine with arsenic; to cram arsenic around the neck of roots of teeth, in order to cause absorption of the alveolus, previous to attempting their extraction; to use the old key of Garengot almost exclusively; and to follow many other antediluvian principles, simply because Harris or Mrs. Grundy so advised, and because they have not the independance to think for themselves, or the liberality to concede to others who differ with them the barest possibility of being in the right. They make dentistry a science of speculations rather than a science of facts, and are as tenacious, not only of their views on amalgam, but on every other dental question, as if there was concentrated in their brains an incarnation of sagacity, equal to that of the seven sages of Greece stewed down together in Æson's chaldron. The one distilled drop of otto of roses from a million blossoms is not a circumstance to them.

As I showed in my first article, Dr. PARMLY used precisely the same arguments thirty years ago as Mr. B. endeavoured to startle the readers of the C. M. J. with as original, and neither Mr. B. nor any one else has ever been able to add one whit; excepting the proportions of amalgam as given by my opponent—64 parts of mercury to 36 of silver—which are, I will admit, “purely original: his figures, however, remind me of the story of the weaver, who added the year of our Lord at the top of his page to the amount of his profits, and who got astray in the small item of of \$1860. On the 19th July, 1842, Dr. PARMLY wrote: “I once prepared some amalgam, and filled a *dead tooth* with it for Mr. N., of New York, and he is the only person in the world that can exhibit a tooth ever touched by me with it; *having proved* its deleterious effects I uniformly condemn it, and have condemned it for many years.” Now here the great anti-amalgamite exposes a specimen of the scientific reasoning indulged in on amalgam. He admits he only used it once, and in a *dead tooth*, (and yet saved that tooth,) and then, with characteristic logic, concludes that he proved its deleterious effects from mere theory and this one case. Mr. BOWKER, however, does not need even to test the material for himself. He has the opinions of authors, such as HARRIS and PIGGOTT, who participated in the amalgam war of 1842, and who cannot conveniently recant, because they are dead; the opinions of Dr. PARMLY, who has not been in the practice of dentistry for over twelve years, and who does not now presume to offer himself as an authority; he has old volumes of the *American Journal of Dental Science*, which are as dear to him as the Koran to the Mahometan; he has resolutions against amalgam of *old societies* passed during the Amalgam war, which certainly cannot repeal them, because the constant bickering ruined their usefulness, and they have been defunct for two decades; he has *old* opinions of eminent dentists; but the peculiarity about it is that the *American Journal of Dental Science* of to-day rejects the dictum of the *American Journal of Dental Science* of 1842, and the eminent dentists whom Mr. B. quotes as having said such hard things against amalgam in 1842, have recanted those hard words, and now use “the poison!”—“So much for” Mr. H. M. BOWKER.

I must reiterate the regret expressed in my first article, that my opponent found it necessary in relieving his mind of his opinions on a scientific question, to impute “ignorance, want of skill, and dishonesty,” pointedly to our Canadian Dental Associations, and to all who were not exactly of his opinion; and to assert, with that innate modesty which characterizes great men, that as all the dentists in Canada, except himself, used amalgam, therefore he was the only skilful and honest one

left in the Dominion ! With such contributions to the polite literature of the dental profession I shall not attempt to compete. But this assertion compels me again to remove the impression his articles were intended to convey, viz. : that amalgam is *par excellence* used indiscriminately by those who use it at all, and that those who use it with discrimination are equivalent to those who use nothing else. He also endeavours, in true 1842 fashion, to make his readers believe, that because I defend the use of amalgam at all, I defend its exclusive use by quacks. Very gentlemanly, indeed.

Every honest dentist accepts the very simple proposition, which is not at all original with Mr. B., but was made and accepted before he was born, or dentistry was a regular profession—that gold is decidedly the best material for the teeth in every case where it can be used. I mean used so as to preserve the tooth and not so as to fall out in a few weeks or even years ; used so that the fact of gold being in the tooth is unmistakable, while the fact that the decay has not been half removed or the filling not properly condensed against the parieties of the cavity, is unmistakable too. It is rather trite to present the fact that the principle of every honest dentist—assuming that the public really believe there are other honest dentists in Canada besides my modest opponent—is to use gold for filling teeth as much as possible ; and also that the principle of those who use amalgam, is to use it mostly in teeth which my opponent admits he would extract.

Mr. B. extols tin-foil in lieu of gold, and does not seem to think that galvanic action can be excited in the mouth with gold and tin as well as with gold and silver ! I never yet saw a tooth that could be well filled with tin, but that could be better filled with gold. I have seen fillings of tin quite as discoloured as bad uncleansed amalgams. Circumstances occur where a soft filling is an absolute necessity, unless the tooth is extracted. The principal consideration in favor of tin over gold is the one Mr. B. seems to despise in amalgam, viz., cheapness. There is no medicinal virtue in gold-foil. To be of use at all it must be thoroughly consolidated, and classes and conditions of decayed teeth exist which are too frail to bear this requisite consolidation, and yet which with a filling easily introduced can be made useful for mastication for life. Now, no honest dentist would use amalgam in a front tooth, for the simple reason that a front tooth is more exposed ; and the most precious, most orthodox filling is demanded. Amalgam in some mouths will discolour on the surface but in the large majority of cases where a good amalgam is properly inserted, it does not discolour. It is more liable to discolour in approximal cavities, because the tooth-brush cannot reach these points. However,

several of the preparations of gold, such as sponge gold, &c., much used by some dentists, will become as black as ink on the surface. Under no circumstances would I prefer to insert tin-foil in a front tooth; gold can be just as easily inserted in every case.

The opponents of amalgam meet with frail cavities which they cannot fill with either gold or tin-foil, and they either extract the tooth or fill it with a preparation of gutta percha and silex; or another compound called oxy-chloride of zinc,—a preparation of refined borax, quartz, French white zinc, which is calcined; and to the frit formed, calcined zinc is added, and the mixture made by forming a paste with a solution of dry salt, chloride zinc and water. Neither of these can make permanent fillings, and I have seen many cases where teeth were plastered up with these destructible articles, and deluded the patient into the belief that they were securely filled, when the edges were breaking away, decay creeping in, and destruction ensued, where good amalgam would have saved them. Take very large cavities in the molars; the labial and posterior sides broken away. To fill these properly with gold would necessitate an expenditure of time and material which few people in Canada, at present, appreciate sufficiently to pay for. And here I would say that in one family of four children, in Montreal, well known to Mr. B., I inserted 56 fillings—none amalgam,—all of which, with the exception of 8, had been filled with gold, and oxy-chloride of zinc, by an anti-amalgamite who considers himself something superior, about two years before they came into my hands. In the teeth of one young man, well known to Mr. B., I replaced 10 gold fillings which had been inserted by the same dentist as the above case, about eighteen months before. Now, if a dentist inserts such gold fillings, and charges the highest price, surely he had better have let them alone, and surely amalgam would be better for *him*, at least, to use.

There are a class of dentists who have a class of custom among the poor. If they fill the teeth of the poor with any other soft filling than amalgam, they deceive the patient as to the permanency of the filling; if they use gold or tin exclusively, neither the cost of the former nor the labor of either can be remunerated. And what then? Either the dentist must starve, or the teeth of the poor must be consigned to Mr. B.'s scientific way of escaping an impediment, viz., extraction.

I wish emphatically to remark, that I do not and did not defend amalgam *in toto*. There is not an honest dentist in the land but denounces its indiscriminate use, and will rejoice when some non-metallic soft filling as good can be discovered to replace it. I perfectly agree that there is too much used, just as most of physicians agree that there is too much medicine used. But there are poorly qualified dentists as well as

physicians, and you cannot regulate the practice of either in the respective particulars. The *abuse* of a medicine is no argument at all for its abolition, or what would be left of the pharmacopœia? Our Canadian dental societies were organized for the express purpose of elevating poorly qualified dentists to the highest standard they are capable of attaining, but Mr. B. consistently ignores their usefulness and defames their reputation in the *Canada Medical Journal*. Can he divine a better way to change any malpractice or mistaken practice than by giving them gratuitous instruction and clinical education? Any dentist can show from the work of "cheap dentists" and some who esteem themselves superior, such abominable specimens of gold fillings as to lead many to condemn gold for filling. Mr. B. is satisfied to look at the bad operations or failures of others with amalgam. Has he no perception for the like in gold? and do all gold fillings preserve the teeth? This dodge of classing those who use amalgam occasionally, with those who use it exclusively is worn out.

A question arises here which it may be as well to dispose of. Can Mr. B., be so ignorant of the proportions of amalgam as to believe what he absurdly asserted in his first article—"When the mixture is subjected to the highest pressure in order to remove the free mercury, the amalgam then contains a preparation of 64 parts of mercury to 36 parts of silver?" What physician believing such to be the case, but would condemn amalgam, as it would never harden in the tooth, and would certainly be swallowed. If Mr. B. is not ignorant of the absurdity of these figures, what were his motives in publishing such a statement, associated as it was with the other assertion that nearly all the dentists in the Dominion *except himself*, used it?

I consider it my business as a dentist to regard the preservation of even a single tooth, in the most of cases, as highly as a physician would a human life. The very end and essence, the *summum bonum* of the honest dentist is to save the human teeth, and conservative dentistry is far above the mere mechanical. Any quack may extract a tooth; every one cannot fill it, even with amalgam, so as to preserve it. Mr. B. admits with bucolic innocence, that there are teeth which cannot be filled permanently with anything *he* now uses in his practice,—for it is a fact that other *soft* fillings than amalgam are not permanent—and that rather than fill a tooth with amalgam he would extract it! There is dental science for you with a vengeance! And from "the expositor of the abuses of dentistry" too! Now according to this scientific admission, my opponent must have extracted hundreds of teeth, because he would not use amalgam, when thousands of proofs exist everywhere in this very city, and many

proofs in the teeth of physicians and their families of Montreal, that amalgam has healthily preserved teeth from further decay, which would have been consigned to Mr. B's. forceps.

Like nearly all opponents of amalgam, he presumes to speak *ex cathedra* on a point of practice which he "conscientiously affirms" he has never tried! He offers his theoretical knowledge against the practical experience of the thousands of other dentists who are teachers in colleges, eminent operators, leading writers of the present day, not of 1842; many of whom are also medical graduates, and who are the acknowledged head of the profession in America and Europe. I should like my opponent to explain the qualifications he possesses to justify him in this assumption. Is he not like the critics who judge a book from the title page, and who, be it marked, are invariably the most dogmatic and intolerant critics of all? Which testimony in the use of a medicine would be most worthy of confidence,—that of the comparatively obscure man who avows his opinions to be due to second-hand text books, back numbers of old periodicals, old opinions of writers, which they recanted, and resolutions of defunct societies, or that of the men who have the lead in every progressive dental movement, who are the acknowledged leaders in this most progressive period of dentistry, who, with one or two exceptions, repudiate the assertions of the former? Mr. B. would positively have the world believe that mere opinions formed thirty years ago are more reliable than as many years practical observation and experience!

There are points and paragraphs in Mr. B.'s last article which I cannot quietly pass over—they are too tempting to omit. He labors hard for arguments, and gives as his reason for accusing the "Royal College of Dental Surgeons of Ontario" of encouraging the use of amalgam, that "in the *Canada Journal of Dental Science*," vol. 1. page 210, are to be found questions put to the students on amalgam, in the said College. The wrong use of the plural instead of the singular number does not seem to rub against the grain of his conscience whenever it can make an argument appear stronger. There were not "questions" asked. There was only the one question asked. "What is an amalgam," and this not by the examiner on Operative Dentistry whose office is to "encourage" the proper materials for filling teeth, but by the examiner on Chemistry, whose office is to treat his questions from a purely chemical point of view. But what has he to say about his false charge against the Dental Association of this province? Nothing more than that as I was Secretary of the Association at the time, and because I edited the *Dental Journal*, therefore the Society of which I was Secretary "advocated and vindicated the use of amalgam!" Very logical, indeed. Very original logic.

Peculiar to Mr. H. M. B. And yet, Mr. B. conveniently overlooks the important fact that the only reason I wrote on amalgam was to disprove *his false accusations*, and that *he had published* the false accusations in the *Canada Medical Journal* before I wrote a line on the subject. "So much for" Mr. H. M. B. How monotonous it is for some men to tell the truth!

He also says "the American Journal of Dental Science" has always in its articles on the subject taken a most decided and *uncompromising* stand against the use of amalgam," and yet in the second paragraph of his article, he says that the present editor of the *Journal* "thinks I have taken an extreme view, and believes that amalgam *can be safely used* in teeth which are mere shells." He mentions HARRIS, WESTCOTT, DWINELLE, S. BROWN, PIGGOTT and PARMLY, all of whom he says, "repudiated the use of amalgam, and *those of them now living remain unchanged* in their opinions on this question." Well, HARRIS, BROWN and PIGGOTT are dead; DWINELLE refuses to discuss the subject; PARMLY is no longer in practice, and WESTCOTT, who is still a leading man in dentistry and who was actually the brightest man of them all, has recanted his old opinions. The "*American Journal of Dental Science*" in reviewing Mr. B's. first article said as follows:

"This article is somewhat severe upon the "Royal College of Dental Surgeons," and the Dental Societies of Canada. *Who Mr. Bowker is we do not know*; perhaps the "*Canada Journal of Dental Science*" can enlighten us; but whether Mr. B. is qualified by professional *experience and investigation* to make a report upon this subject or not, much that he says is true, but at the same time we think that he has taken an extreme view of the case.

"Although no advocate for the indiscriminate use of amalgam and believing that tin-foil is much superior as a *cheap* material for filling teeth, yet we think this compound may be used in teeth which are mere shells, so far gone that no other metal can be safely introduced, and that it will preserve such teeth for a time at least, especially where their extraction is contra-indicated for some good reason.

"On the other hand such fillings should never be used in teeth which it is possible to fill with either gold or tin-foil; and in no case should amalgam be used in front teeth, or in the pulp cavities of teeth, or in the proximity of a living pulp.

"When properly prepared and properly introduced, instead of amalgam fillings containing 64 parts of mercury to 36 of silver, as Mr. B. asserts, the proportion of mercury need not and should not be half so great.

The objections urged against this compound in Mr. B's. article would certainly hold good, *if the amalgam used at the present time was as im-*

pure as that employed ten or twelve years ago. But a great improvement has been made not alone as regards the purity of the ingredients composing amalgam, but also as to the manner of preparing and introducing it into the teeth.

"The following is the best method for using this material in cases where its use is indicated." Then follows the detailed description of the "method of use. Now I ask any one of common sense if that is the uncompromising condemnation" of amalgam Mr. B. would make his readers believe the American Journal of Dental Science still maintains. This extract is from the pen of *the present editor* of the A. J. D. S.,—Prof. GORGAS, who is also Professor of Dental Surgery and Dean of the oldest Dental College in the world, that of Baltimore. Knowing Mr. BOWKER's high appreciation of the A. J. D. S., and all connected with it, I wrote to Prof. GORGAS and received the following answers to questions, Dec. 2, 1870.

Question—Do you not believe that amalgam will preserve a healthy tooth?"

Answer (by Professor GORGAS.)—"I do, if it is properly inserted into a properly prepared cavity."

Question.—"Do you think it better to extract a tooth, as Mr. BOWKER says he would do, rather than fill it with amalgam."

Answer (by Professor GORGAS.)—"I should prefer having a tooth filled with amalgam, to having it extracted, and would so advise my patients."—"So much for" Mr. H. M. BOWKER.

Dr. WESTCOTT's writings and sayings seem to have great weight with Mr. B., who says, "Dr. WESTCOTT, *an authority*—he having filled the Professorial Chairs of Operative and Mechanical Dentistry, in the Dental Colleges of Baltimore and New York—is one of *the original and most indefatigable writers against* all preparations of mercury for filling teeth. What does he say? His utterances are not uncertain; what language can be more decisive? He, in the most emphatic manner, says, "No man who has so little self-respect as to use this amalgam *to any considerable extent* will refuse to stoop to any species of quackery which will contribute to his pockets," &c. Precisely so say I; and every honest dentist joins in condemnation of the men who use amalgam to such a considerable extent as to seldom use anything else. Dr. WESTCOTT was once an editor of the A. J. D. S. He is a great authority on amalgam, Mr. B. tells us, and the latter quotes what he said twenty-five years ago; a quarter of a century does not enlighten one according to Mr. B.'s theory. I trust, however, his weak nerves will survive the

following little shock, and that Dr. WESTCOTT will continue to hold a place in his memory. Mr. B.'s "authority," like all sensible and unprejudiced men, has the manliness to acknowledge his erroneous views on amalgam, and is now using "the poison." He was the Secretary of the "American Society of Dental Surgeons," which passed the resolution against amalgam, and his name is appended to that resolution with Dr. PARMLY'S; and so zealous a seconder was he of the bitterness of the latter that he was named his "*fidus Achates*."

"Syracuse, Jan. 16, 1871.

Mr. W. GEO. BEERS—

Dear Sir,

I am in receipt of your letter upon the subject of the use of amalgam. I would have replied more promptly could I have found time to write you as fully as the subject demanded; for having somewhat *modified my views and practice* within the last fifteen or twenty years upon the subject, I hardly liked to give you the views I now entertain without giving you fully my reasons for such modification, and the restraints and limits I still hold in reference to their employment. Should I get time to do so, I will at some future time write out my views fully upon this subject, stating when, and only when, how, and only how, I use amalgam for filling a tooth.

Very truly yours,

A. WESTCOTT.

May I not return the salutation of my opponent, and say "So much for"—Mr. H. M. BOWKER.

In another place my opponent says, two leading Ontario dentists—one the co-editor of the *C. J. D. S.*—"agree in the main with me as to the use of A." Well, it seems necessary to reiterate that every honest dentist agrees that the indiscriminate use of amalgam is wrong, and that the use of *Mr. Bowker's amalgam proportions* is not only wrong, but worse. But how hard up my opponent must be for arguments, when he has to quote such a statement of dentists *who actually use amalgam*.

He courteously says, I do not tell the truth in saying that the "American Society of Dental Surgeons" did not *unanimously* carry the resolution of 1845 condemning amalgam. The facts are these (my readers can interpret them as they please): sixty-one members voted dead against the resolution when it was first brought up, and after these sixty-one had either resigned, or were expelled for non-compliance with the rash and silly movement, the remainder then "*unanimously*" (!) carried their own resolution. Mr. B. also denies that this resolution was finally rescinded: here is my authority for saying that it was. At a special

meeting of the Society, held in Baltimore, 25th March, 1850, Drs. WESTCOTT, TOWNSEND, and I. H. FOSTER were appointed a Committee to report on the propriety of rescinding the amalgam pledge. At Saratoga, in August, 1850 (the following appears in the *New York Dental Recorder*, vol. 5, page 69): "The Committee appointed at the called meeting in Baltimore to consider the propriety of rescinding the amalgam pledge, reported through their chairman, Dr. E. TOWNSEND, which report, after considerable discussion and recommitment for the purpose of amendment, was finally adopted, and the following resolution along with it:—

"Resolved—That the several resolutions adopted by the "Society of Dental Surgeons," at the annual meetings held 1845-46, having the effect of enforcing subscription to the protest and pledge against the use of amalgams and mineral paste fillings for teeth, be, and the same are, hereby rescinded and repealed."

Common sense has also repealed it: science peremptorily repeals such rubbish in her onward march.

Mr. B. cites resolutions passed in the dark ages of dentistry by the "Virginian Society of Surgeon Dentists" and the "Mississippi Valley Association of Dental Surgeons." Pray, who were they? and where are they now? "Down among the dead men."

My over-anxious opponent asks, "Is the Canadian Dental College prepared to say that the members of their kindred colleges in the United States are ignorant empirics?" That will not do, Mr. B. The Dental Colleges of the United States, as their reports show, do use amalgam, though discriminately; the Canadian College has not used it as it has happened; therefore Mr. BOWKER alone is the one who charges "the members of their kindred colleges in the United States with being ignorant empirics."

During a recent trip through the United States I met most of the very leading men in the dental colleges, associations, the journals, &c. and had especial opportunity of finding out the facts as to the use of amalgam. I found one bitter old gentleman who v. nted forth the ancient refrain against its use; but I also discovered that he never tried to save exposed pulps of teeth, and that in the great improvements in practice he had no faith or share. All unanimously advocate discrimination in its use; use of gold in preference wherever it can be used; but the old theories I found entirely exploded, and yet the very proper precaution prevailed not to extol it, lest it should lead to over-estimation. Professor ATKINSON, of New York—a very giant among giants in dentistry, whose excellence in operating, keen diagnostic and general scientific

attainments none can fairly dispute, and who frequently receives \$50 and \$100 for a single gold filling, and who, therefore, has every reason, were he selfish, to denounce amalgam—writes to me lately the following replies to questions:—

1. "Will not a properly prepared amalgam, properly inserted, preserve a healthy tooth?" *Answer, by Professor A.*—"Yes, as well as any other filling."

2. "Do you believe there is any possibility of pytalism from amalgam in the teeth?" *Answer, by Professor A.*—"Nay, verily."

3. "Is amalgam not used by very eminent dentists for patients who cannot pay for gold, and for certain classes and conditions of decayed teeth which cannot be well filled with gold?" *Answer, by Professor A.*—"Yes, and by those of deserved eminence."

I can produce any quantity of such testimony from mostly all the leading dentists: one more will suffice for the present: it is from one of the keenest observers and rising men of the profession, Dr. S. P. CUTLER, Professor of Chemistry, Metallurgy, Microscopy, and Histology in the New Orleans Dental College. He says, "Undoubtedly I do think amalgam may not only be used, but with most decided benefit in a great many instances; where gold cannot be used I would use amalgam for permanent use. I have had several discussions with Dr. GEO. WATT on the subject of amalgam, and I always differed with him; his conclusions were not at all satisfactory to me. I have used amalgam for 25 years quite extensively, and never in any instance have I seen a single well-marked case of disease, either local or general, from its use in my own hands, or in any others. I have seen cases that have been attributed to its use, but without satisfactory evidence. I believe that good amalgam fillings in *badly decayed teeth*, thoroughly introduced and well finished after hardening, to be superior to any other filling, and will preserve such teeth much longer than gold or anything else, especially in back teeth. There are various reasons for the conclusions well-founded."

A dealer in dental materials in Ontario tells me that he has sold amalgam to nearly every dentist in Canada, though there are some dentists who deal elsewhere; he "sells to the best as well as the poorest. My sales in Canada amount to about 500 ounces per year." The largest dental depot in the world writes to me, Dec. 2, 1870: "We do sell amalgam to many of the leading practitioners in the United States; it is very extensively used by some of the profession, who, as contributors or editors of dental journals, professors in dental colleges, &c., are regarded as eminent dentists. Our sales amount to between 5,000 and 10,000 ounces per year." And it must be remembered that there are perhaps a score of dental depots in the United States.

Some of the leading dentists in the United States have recently introduced amalgams of their own composition to the profession.

The Dental Journals contain advertisements of amalgam recommended by leading dentists; and if the *Canada Dental Journal* does advertise amalgam, it is only what is done by every other similar journal in the world, and Mr. B. must be very simple if he thinks a publisher would refuse any proper advertisement. He has raked up all the petty little things he can think of to strengthen his case, but they have only served to weaken it. He twists a quotation around and endeavours to make it appear that the words of another whom I quoted, are original with me, and says "As long as I have been a member of the profession, I was not aware that pure gold would become highly oxydized when used as plugs in the teeth, or would have any medicinal effects on the constitution." Who said it would? Neither I nor the writer whom I quoted. My quotation said, "With equal propriety it might be urged against gold, that, *because when highly oxydized* it becomes a powerful medicinal agent, therefore it should not be used as a filling for teeth." This was in connection with a refutation of the assumption that because there is mercury in amalgam, it must necessarily have a mercurializing influence. Mr. B. has something now to learn about gold as well as silver, if he is not aware that gold can become oxydized; and that it can produce medicinal effects on the constitution. Is not the ter-chloride of gold a powerful irritant poison? And Mr. B. is not aware that there can be produced an oxide of gold! Did he never know that a preparation of gold muriate or chloride of gold has been used as an antisyphilitic, in obstinate scrofulous and cancerous glandular enlargements, exostoses, &c., and that it is rubbed on the tongue or gums?

In my last article I referred to JOHN TOMES, F.R.S., author of "Tomes Dental Surgery," &c., NASMYTH, well-known for his physiological investigations; SAUNDERS, dentist to Her Majesty; and other eminent English, German, French and American authors and practitioners; Professors PIERCE, BUCKINGHAM, McQUILLEN, FITCH, FLAGG, ALLEN, &c., all of them the very leading talent, and admittedly so. Mr. B. amuses me by asking the pompous question: "Are they practitioners of any high repute?" Perhaps the "American Journal of Dental Science," who does not know "who Mr. B. is" will answer his question. I should like to know who are practitioners of high repute, when we exclude such men as the above, and the host of eminent dentists, who hold the same views of amalgam.

I am sure that Mr. B.'s query will be a source of amusement to the

dental profession in general. Possibly he believes that as he—according to his own assertion—is the only skilful and honest Dentist in Canada, so the few extreme opponents of amalgam in the United States are the only intelligent ones left since the days of 1842.

Mr. B. says “I ask Mr. BEERS, “Are the physical conditions of the human frame different in 1870 from what they were in 1847? If the malpractice of amalgam was determined in 1847, what circumstances can possibly make its use sound and good practice in 1870?” Very easily answered. 1st. I am prepared to debate the former question in the affirmative, at any time. But allowing that they have not undergone any change, I would answer that the common sense and intelligence of 1870, such as shown by Dr. WESTCOTT, is infinitely in advance of 1847, and I pity him if he doubts it. But may I ask him to point out the divine law which made the dictum of 1847 binding on the generation of 1871; and if it was “determined in 1847” that there was no real hope of preserving an abscessed tooth, why we make efforts and succeed in saving them in 1871. Pshaw? such a question is only fit for a *habitant* to ask, who clings to his wooden plough, and his poor agricultural ideas, because his fathers taught him to do so.

How does the matter stand to-day? In favor of the discriminate use of amalgam, we have the very leading men in every country in the world; while on the other hand, they freely admit that gold is the best filling when it can be used to save the tooth. The opinion of John TOMES alone is worth ten times more than that of any prejudiced investigator in • America or elsewhere.

I have one serious question to ask Mr. B., which, with the other points, I beg him not to evade. If, as he asserts, he has *always* considered the use of amalgam injurious, and has known in his thirty years practice that it was used, and even very much more used formerly than now, why he waited until the present organization and progressive movement of the dental profession in Canada—in which he shirked a share—to unburden his mind of his opinions? He had such a superabundance of conscientiousness all of a sudden, that he felt “it would be a violation both of duty and conscience to remain silent,”—yet *he remained so a quarter of a century*, and was impelled to come out as an “expositor of the abuses of dentistry,” at the very nick of time when dental associations, a college, and a journal were vigorously working for education and reform.

One question more, and I have done with Mr. B.

The early writers against amalgam held the view that because there was mercury in it it was poisonous. Mr. B. quotes Dr. GEO. WATT and Dr. TAFT, of Cincinnati extensively. Drs. WATT and TAFT say that

because there is mercury in amalgam it is poisonous. Mr. B. also says that the mercury in the compound is the reason it is poisonous.

Well, Dr. WATT says of red vulcanite, which is used as a base for artificial teeth, that because there is mercury in it, it is poisonous. Dr. Taft says it is poisonous. Now what about Mr. BOWKER? Oh! he has been using this very red vulcanite since its introduction, and though Drs. WATT and TAFT, who are so great authorities with him against amalgam say it is poisonous, and Prof. SILLIMAN says that one-third of the whole is sulphide of mercury, and though a host of dentists, chemists and physicians are running the rubber question in the United States just as amalgam was run in 1845, and though Drs. WATT, TAFT, &c., say it causes salivation, produces injurious constitutional effects, &c., yet Mr. BOWKER places it, not in the *bony* substance of a tooth, but covering the mucous membrane of the hard palate! And this tirade against red vulcanite "because there is mercury in it" is of 1870 and 71, not of 1845. Will Mr. BOWKER explain this remarkable inconsistency? Personally I do not believe that if the rubber is properly vulcanized, kept clean, and removed occasionally—as nature never intended the roof of the mouth to be covered with a foreign base—that it is injurious or poisonous; because before the mercury or sulphur can be set free the base must undergo decomposition. The opposition to its use in the States originated when the Goodyear Rubber Co. compelled dentists to pay an annual tax, and its principal opponents are those who have prepared substitutes to take its place, and which they are anxious to sell. But still there is sulphide of mercury in red vulcanite, and how does my opponent reconcile his opposition to amalgam, which keeps hard and perfect for years, with his use of a material which wears away in the mouth; and we know the sulphide of mercury used in the rubber is frequently adulterated with red lead, and bisulphide of arsenic—poisons which are soluble in the mouth.

In conclusion, I hold that if any dentist extracts every tooth he cannot fill with gold, and which can be filled with amalgam, he is guilty of gross injustice to his patients, and gross malpractice. This is the opinion of the leading dentists of the day, and while determining to use gold in every possible case, they are well aware of the risk incurred in extolling a filling so easily introduced as amalgam. There are "cheap dentists" who cannot use gold, and to whose souls a defence of any soft filling is a sweet consolation. I do not defend amalgam, or anything else in the hands of the "cheap dentists." But I know that they *may* make a permanent filling of amalgam, while I know that they cannot make one of gold. Not to mince the matter, the majority of the present extreme opponents of amal-

gam, are all old-fogy practitioners, who esteem their age and past reputation sufficient reason to dignify the most absurd assertions. The progress of dentistry never was much aided by their efforts, and never will be. They have fallen behind, and have failed to keep pace with that intelligence and freedom from prejudice, which characterize the men who *now* rank highest in the dental profession of every country in the world.

[Among the scores of opinions on Amalgam sent us by the leading men in the profession, we value the following from the pen of one of widely recognized ability. Though written very hastily and not exactly for publication, it evinces something deeper than second-hand assumption.]

MY DEAR SIR,—Your favour of 22 prox. came to hand day before yesterday.

I have been experimenting since yesterday morning on amalgams. First, I put into nitric acid one part to four of water, a lump of hard amalgam; second, hydrochloric acid one part to two of water; third, sulphuric acid one part to two; fourth, strong vinegar. A lump of dry amalgam has remained in each since yesterday, the only effect noticeable in either is a slight action of the nitric acid, darkening slightly the surface, without any perceptible change; none of the others have underwent any perceptible change, but remain clear and white.

Now any of these preparations are sufficiently strong to act with energy on teeth in the same length of time, and any of these acids would if retained in the mouth any length of time, excoriate the entire mucous surfaces. Good amalgams are composed of pure tin and silver, and amalgamated with pure mercury. Water does not decompose mercury silver or tin to any perceptible extent. Nitric acid dilute acts on silver, also mercury separately and less so on tin. Heat facilitating the action when the three are combined, as in amalgam, the acid action is greatly lessened. I do not believe that any action of the fluids of the mouth is sufficient to produce any mercurial salt capable of acting injuriously to the slightest extent, even in cases that have been repeatedly salivated by taking mercurials; if so, I have never witnessed a case during thirty-two years professional observation.

I have seen a filling but a short time since, made of silver filings and mercury, that had been in a lower bicuspid twenty-five years, the filling being perfectly sound and the tooth all round except near the gum where a cavity below had nearly reached the filling. This filling was very dark on the surface, but on running a file over it slightly it gave a pure sound white surface, in consequence I left the filling in and filled

below it. This dark surface was the result of the silver oxidizing slightly.

Remove any amalgam filling from any tooth and file the surface, and the filed portion will become white and metallic. In order to get protoxide of mercury, which is the only one of consequence, mercury must be heated up to 600 degrees with free access of air, then red precipitate is formed, which is the protoxide, and on raising the heat higher, this oxide is again decomposed into the simple elements.

To form calomel, which is a sub-chloride, subnitrate of mercury is precipitated by common salt; it is also formed by other processes. Protochloride of mercury, or corrosive sublimate, may be made in several ways. When metallic mercury is heated in chlorine gas it takes fire and burns, producing this salt.

From the above formulas it will be seen that mercury is not readily acted upon by any fluids that may exist in the mouth, as these fluids always contain at least from 800 to 900 parts of water in 1000 parts, so that any acid or any other agent contained in this fluid could absolutely have no action of any moment; neither in tin or silver; the latter turns dark from an oxide being formed in some mouths much more readily than in others; some mouths scarcely acting on a silver plate at all. Youman says that mercury slowly vaporises at all temperatures above 40 degrees; some say all temperatures above 66. The vaporisation goes on more rapidly as the temperature is raised up to the point of ebullition 662.

All the apprehension that need give us any concern in connection with amalgam fillings is the vaporisation during the process of hardening, some of which undoubtedly will be inhaled into the lungs, as this vapor must be lighter than air or it could not be a vapor at all. The amount that might be inhaled would be so insignificant that it would not do any mischief, as it would be carried out of the lungs again even if it passed the entire rounds of the circulation.

Workers in quick silver are short-lived, owing to the fact that they are constantly in an atmosphere charged with these vapors, which no doubt keep their systems saturated during their working hours, which in a few causes a total lesion of nutrition, the hair and nails fall off, the hard tissues become saturated; the periostium fails to nourish the bones, and the poor wretches die from exhaustion.

The insignificant amount of this vapor escaping from a fine amalgam filling could produced no injurious effect. The vapor will salivate when sufficient has been inhaled, which is the first effect of almost all forms of mercury, however introduced into the system. Mercury in its action is

an irritating stimulant, to the glands more especially, the liver primarily, the oral secondarily.

March 31.—All the specimens have now been in the acids 48 hours, none of them are in the least affected, except that in the nitric acid, which is nearly all decomposed, with some precipitate of tin I suppose, at the bottom. It will be seen that in 24 hours there was scarcely any action at all by the nitric acid, and now none at all by any action of the other acids.

I think these conclusions are sustained by demonstrable facts as given above.

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